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GEOLOGY AND PALÆONTOLOGY.

Fish Otoliths of the Southern Old-Tertiary.—In a recent article[1] Dr. E. Koken in Berlin describes the fish otoliths collected by Dr. Otto Meyer in the Old-Tertiary of Mississippi and Alabama. The locality "Jackson River" of Mr. Koken ought to be "Jackson, Miss.," and the locality "Newton, Miss.," cannot be considered as belonging to the Vicksburg beds. Changed accordingly, Mr. Koken's table of species is given below.

	Claiborne, Ala.	Newton, Miss.	Jackson, Miss.	Vicksburg, Miss.
Otolithus (Carangidarum) americanus......			+	+
" (Apogonidarum) hospes..........			+	
" (Pagelli) elegantulus.............			+	
" (Sparidarum) insuetus............			+	
" (Sciænidarum) radians...........				+
" " gemma...........			+	
" " eporrectus........		+		+ and Red Bluff, Miss.
" " claybornensis.....	+		+	
" " intermedius.......	+			
" " similis............			+	
" " decipiens..........	+			
" (Trachini) lævigatus.............			+	
" (Cottidarum) sulcatus............			+	
" (Triglæ) cor.....................			+	
" (Cepolæ) comes..................			+	
" (Mugilidarum) debilis............			+	
" (Gadidarum) meyeri.............			+	
" " elevatus.............	+			
" " mucronatus........	+			
" (Platessæ) sector.................	+		+	+
" (Soleæ) glaber...................			+	
" (Congeris) brevior................			+	
" (incert. sedis) aff. umbonato......		+		

We see that Mr. Koken has succeeded in determining the genera or families of all fishes which are represented by these ear-bones, with the single exception of one worn specimen from Newton. The enumerated families and genera indicate a strictly litoral fauna, no abyssal form is among them. It is different in its character from the fish fauna of the German Tertiary, which has been studied also by Mr. Koken from the otoliths, but resembles in general the present fauna of the Gulf of Mexico, of the West Indies, and the Southern coasts of the United States. The dissimilarity of the fish faunas on both sides of the Atlantic existed, therefore, already during the earlier Tertiary. We are indebted to Mr. Koken for having developed an entirely neglected subject, the study and determination of fossil fish otoliths, to such an extent that important conclusions can be derived.—*O. Meyer.*

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[1] "Neue Untersuchungen an tertiaeren Fisch-Otolithen." Zeitschrift d. deutsch. geolog. Gesellsch., 1888, p. 274, 3 plates.

CATALOGUE OF FOSSIL REPTILIA AND BATRACHIA OF THE BRITISH MUSEUM Pt. I., by Dr. Lydekker. In this volume we have what has been long needed, a synopsis of the fine collection of British and such other European extinct reptiles of the orders Ornithosauria (Crocodilia), Dinosauria, Squamata and Rhynchocephalia, which is embraced in the national museum of Great Britain. This synopsis is, like its predecessors, systematically arranged, and the text is enlightened with comments on the structural relations of the forms embraced in it. Many of the forms, especially of Dinosauria, described by English authors, have been hitherto in a state of obscurity to foreign observation, and a great deal is done in the present volume towards clearing this away. Especially valuable are the diagnoses of families and genera of the Crocodilia, in which the mesozoic formations of Europe are so productive. While we accord generally with the systematic views expressed by Dr. Lydekker, we must point out a few points of divergence. We cannot perceive the *raison d'etre* of an order Proterosauria, which the author, indeed, seems to regard as provisional. We do not believe that the Opisthocœla (Sauropoda) is distinguishable as an order from the Crocodilia. In nomenclature, we find the two divisions of the true Dinosauria to accord exactly with our own, and not with those of Professor Marsh, yet the names of the latter author are adopted. As usual, we find some generic names adopted, which were never characterized, as Trachodon instead of Hadrosaurus. Finally, we must make an appeal on behalf of the name Belodon for the genus usually so called, as against the prior name of Phytosaurus. Phytosaurus for an entirely carnivorous animal is a gross misnomer, and is nauseating to the scientific stomach. Not only this, but the typical specimen exhibits only mineral casts of the pulp cavities in place of teeth, so that name belongs to mineralogy rather than to palæontology. In case Belodon has been previously otherwise used, there are other available names, as Centemodon Lea, for instance.

In concluding this review, we must record our appreciation of the author's method of clear definitions for all divisions he proposes and adopts, a custom which is the necessary basis of all good taxonomic work.—*E. D. Cope.*

GEOLOGICAL NEWS.—GENERAL.—M. M. Bertrand (*Bull. d. l. Soc. Geol. de France,* No. 7, 1888) endeavors to reconcile the opposite views of French and German geologists relative to the relations between the structure and age of eruptive rocks. While French geologists have, by long study of the eruptive rocks of France, come to the conclusion that their structure shows indubitable traces of the youth, maturity, and old age of the earth, the German school has from its studies concluded that there is no relation between the structure of eruptive rocks and their age, but that all varieties may have been produced at any time in the world's history. Mr. Bertrand believes that the fact that, in the Tertiary period, a series of ancient textures reappeared in consequence of the long period of repose that preceded that period, may be brought in to reconcile the two beliefs. If there was one such recurrence, others, greater or less, may have occurred from similar causes. Still, M. Bertrand believes that there are variations between these recurrences, and sets himself the task of explaining them.

"All the eruptions of the same period (in Europe) are grouped around their corresponding chain, the most ancient around the Caledonian or in the more northern regions; those of the Permian and Carboniferous around the Hercynian chain, those of the Tertiary round the Alps. If the entire globe is studied, at every age rocks of all compositions and structures will be found, which bears out the idea of the German school; but if the same zone is studied, details of structure in relation with the age of the rocks can be found."

M. Bertrand considers the continent of Europe to be formed of four zones, each of which exhibits its series of folds. These zones are: (1) the Huronian, which has its principal European extension in Russia, Finland, and Sweden; (2) the Caledonian, which occupies Ireland, Wales, Scotland, and Norway, thus introducing itself wedge-like into the sinuous outline of the Huronian; (3) the Hercynian or Carboniferous, the northern edge of which, in both Europe and America, is marked by a line of coal measures; (4) the Alpine, comprehending the Pyrenees, Alps, Carpathians, and Balkans. By a curve in its outline the Hercynian mass takes in the Asturias and the central plateau of Spain. Mr. Bertrand gives diagrams of the distribution of the zones in Europe, of their folds, and of the masses of eruptive rocks connected with them, and enters into details regarding the separate masses.

PALÆOZOIC.—Charles Barrois notes the presence in the Pyrenees of a species of Oldhamia found in the palæozoic schists in the department of Haute-Garonne. The new species is named *O. hovelacquei*. The presence of this species, distinct from *O. antiquus*, discovered by Oldham in Ireland in 1844, proves the existence of the Cambrian age in the Pyrenees.

M. D. P. Oehlert describes some Devonian Acephala (Aviculidæ) found in the Devonian strata of France. Three new forms of Pterinea, five of Avicula, one of Palæoneilo, and two of Modiomorpha are added to those previously known.

MESOZOIC.—M. Deperet (*Bull. Soc. Geol. France,* No. 7, 1888) treats of a brackish-water horizon in the Huronian; and describes a new species of Cassiope, one of Cerithium, and one of Corbula from it. The horizon occurs at La Mede and Callauch, near Marseilles.

M. H. E. Sauvage (*Bull. Soc. Geol. France,* No. 7, 1888) describes the reptiles of the Upper Portland series of Boulogne-sur-Mer. These include *Megalosaurus insignis, Iguanodon prestwichii Caulodon precursor,* a Dinosaurian not yet named; three chelonians, two crocodilians (*Machimosaurus interruptus* and *Goniopholis undidens*), an Ichthyosaurus near to *I. thyreospondylus,* and two Plesiosauri.

The Cretaceous region of the southwest of France presents (*Bull. Soc. Geol. de France*) characters strongly contrasting with those of the Jura, Pyrenees, and Brittany. The beds offer both vertical and horizontal continuity, the country not having experienced the disturbances of other Cretaceous basins. There is a considerable hiatus between the Jurassic and the Cretaceous of the southwest of France. The Wealden, Neocomian, Urgonian, Aptian, and Gault are absent, the Cretaceous sea did not invade this region until the Cenomanian period. The Turonian and Danian are present.

Louis Dollo (*Ann. Soc. Geol. du Nord,* July–Aug., 1888) states that *Pachyrhynchus* Dollo, *Erquelinnesia* Dollo, and *Glossochelys* Seeley, are equal to *Euclastes* Cope.

TERTIARY.—M. Gosselet (*Ann. Soc. Geol. du Nord,* July, 1888) disputes some of the conclusions of Prof. Prestwich regarding the correlation of certain Eocene beds of England with those of Belgium and the north of France, and proposes a table in place of that drawn up by Prof. Prestwich. M. Gosselet believes, contrary to the opinion of Prof. Prestwich, that the London clay is represented in the basin of Paris.